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# Notes on the breeding biology of Raso Lark *Alauda razae*

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L'écologie de l'Alouette de Raso *Alauda razae*, espèce endémique aux îles du Cap-Vert et globalement menacée, est peu connue. L'auteur présente des données, récoltées à l'occasion de visites à Raso pendant les mois de mars et octobre 1998, sur les exigences de l'espèce concernant l'habitat, certains aspects de son éco-éthologie, parmi lesquels la parade et l'accouplement, la construction du nid, la taille de ponte, la durée de la couvaison et les soins parentaux. Le jeune est décrit pour la première fois.

## Introduction

**R**aso Lark *Alauda razae* is restricted to, and named after, the remote and uninhabited island of Raso in the Cape Verde Islands. The island covers c7 km<sup>2</sup> and, given the small amount of available habitat, the species is currently considered Endangered<sup>1</sup>, although Ratcliffe *et al.*, following a February 1998 survey (see below), recommend that this categorisation be revised to Critically Endangered. This species resembles a slightly smaller but more stoutly-built Skylark *Alauda arvensis* and is paler and greyer in coloration with a crest that is rarely apparent except when raised. The bill is longer and stouter. It is included in *BWP*<sup>2</sup> but the account is short and rather incomplete.

Together with three colleagues I slept out on the island during 23–26 March 1998, and I made subsequent day visits on 23 October and 29 October 1998. The weather was hot and occasionally windy in March and hot and very windy in October. In March we found no firm evidence of breeding, despite considerable watching. In October, I observed display, mating, nest-building, and found several nests and photographed eggs and young. The following notes summarise these observations.

## Habitat

Approximately half of the island consists of steep-sloping and high rocky ground, unoccupied by larks. The remainder is a level or gently undulating plain, principally bare ground strewn with rocks with scattered patches of meagre grassy vegetation on sandy soil, usually in shallow valleys or slight depressions. Raso Larks occupy the entire plain but are especially associated with the vegetated areas, in which they feed and breed. The vegetation was brown in March and green and fresh in October. All nests found were in these vegetated areas and all were built at the base of, and partly screened by *Abutilon pannosum*. This plant is taller than the surrounding vegetation and has bright green leaves, some with yellow flowers. In both March and October, birds dug small holes in the soft sandy soil in these areas, presumably to expose food items.

## Population

The population has been estimated at 40 pairs (1968), 20 pairs (1977 and 1981), at least 200 birds (1986) and c250 birds (1988, 1990, 1992). It is unknown whether the lowest number was the result of prolonged drought or an incomplete count<sup>4</sup>. However, in February 1998, just prior to my first visit, Ratcliffe *et al.* found just 92 birds in a detailed census. In March, we saw only c40–50 birds, but did not attempt a population census, most in pairs but also in parties of 5–6 birds. Most birds were concentrated around a large sandy area with sparse brown vegetation, near the sea, but others were found in various areas of the plain. In October, pairs were well distributed throughout the plain. I estimate that there were 100 pairs, including several solitary males, probably with nearby females on nests.

## Adult plumage

*BWP*<sup>2</sup> states that the sexes are similar in plumage. There is, however, a marked sexual dimorphism; males possess a distinctly longer and bulkier bill. The birds are always extremely confiding, making sexing very easy. Some birds, both males and females, are darker in coloration. In March, the birds ran around us as we lay in our sleeping bags and, in common with Iago Sparrow *Passeriagoensis*, would drink water put out for them in our bottle tops.

## Breeding season

Most rainfall in the Cape Verdes is in August–November and the timing and quantity of local rainfall determine the breeding season for land birds, including Raso Lark. The birds apparently have two breeding seasons, a main one from September–November, and a less significant one in February–April. Droughts may persist for several seasons and breeding may be sporadic<sup>4</sup>. We found no firm evidence of breeding in March (but see section on song) or recently occupied nests, despite an extensive search. On 23 October, I saw no flying young but found three young aged 12–13 days by their nest. Taking into account an estimated incubation period of 13 days, an egg-laying period of three



Figure 1. Habitat of Raso Lark *Alauda razae* (green vegetated area) (P. Castell)



Figure 2. Adult male Raso Lark *Alauda razae* (N. Williams)



Figure 3. Nest of Raso Lark *Alauda razae* containing three eggs (P. Castell)



Figure 4. Young Raso Lark *Alauda razae* aged 12–13 days (P. Castell)

days and a nest-building period of five days, nest-building commenced on c20 September. On both visits in October birds were nest-building, two nests contained eggs and several nests were empty; there were broken pieces of eggshell in some nests, implying predation. I found 11 recent nests, and many fresh scrapes in October and, judging by the amount of song, was the peak breeding period in this particular year.

### Song, display and mating

In March we heard no song on the first two days of our visit. There was light rain in the night of 24 March and a few birds sang briefly the following day. Rather surprisingly, considering the time of year, there was heavy rain during the night of 25 March and, the following morning, several males sang briefly from rocks and from the ground. We did not see songflighting.

In October, males were singing throughout the plain, especially near vegetated areas. The song recalls that of Skylark and is delivered not only from the ground but from

prominent rocks and also in hovering rising flight (commonly up to c10 m above ground), usually in close proximity (and often immediately above) a female. Males will perform a song flight and then land alongside the female. On 23 October I observed a pair on the ground. A second male approached the female but was chased away for at least 150 m by the other male. The pair then flew c 100 m and landed on the ground in an area of gravel and small rocks. With wings partially opened, the female quivered its entire body for c30 sec before the male ran forward and the pair copulated for c5 sec. Following this, the female shook her wings and both birds flew c30 m to a green vegetated area. From a distance of c25 m I watched the female grab a beakful of dry grass stems and the pair flew to a half-built nest. Approximately half of the grass was lost during the flight. The pair had copulated c30 m from the nest.

### Nest-building

*BWP*<sup>2</sup> provides no information on the role of the sexes in nest-building. In addition to the observation described

above, I watched another female nest-building. The male was in close attendance, while the female collected materials, but did not assist.

## Nest

Nests of desert-dwelling larks are usually a scrape in the ground, constructed by the birds, alongside or partly screened by a rock or small bush, with a rampart of stones or pieces of dried earth at the open side. In contrast, Raso Lark nests closely resemble those of Skylark, having no rampart. A round scrape c10 cm wide and c5 cm deep in the centre is made in soft sandy ground. The scrape is lined with a thick pad of dry grass stems. Some nests contained a few feathers (possibly wind-blown?) in the lining. All were at the base of, and usually partially screened by, *Abutilon* plants, commonly c15 cm tall.

## Breeding territory

As demonstrated above, male Raso Larks appear to defend territories near their nests and females. I did not measure the distances between nests but several were within c150 m of each other. The scattered vegetation, required for both feeding and breeding, is clearly the most crucial factor in the delimitation of territory.

## Eggs and clutch size

Fig. 3 illustrates a nest containing three warm eggs on 29 October. The eggs are typical of a lark and closely resemble those of Woodlark *Lullula arborea*. They are subelliptical, smooth and glossy, with a greyish white background and dark brown markings, heavily concentrated at the larger end. On 29 October, another nest contained one warm egg, that was clearly being incubated. The markings on this egg were chocolate-brown and densely concentrated at the larger end. Four other nests contained fragments of unhatched eggshells. The brood of three young, found on 23 October, suggests that most clutches contain 1–3 eggs.

## Incubation and the role of the sexes

*BWP*<sup>2</sup> states that the incubation period is 13 days, undertaken by both sexes (based on information from the 1890s), but that confirmation is required. This period is consistent with the incubation period of other larks. In October, only the female was found close to the nest containing the one warm egg. On three visits to the nest containing three eggs, both birds were seen near the nest when approached; I was unable to determine which member of the pair had been incubating, but the female was always much closer to the nest than the male.

## Young

See Fig. 4 of the Raso Lark aged 12–13 days on 23 October. It has a well-developed chestnut-brown tail and a promi-

nent white line between the bill and the eye. *BWP*<sup>2</sup> provides no details of the bare parts of the young, but these are illustrated in Fig. 4. This bird had no trace of down and was yet unable to fly. The gape flanges were white and the mouth orange-yellow with five black markings inside the mouth, three on the tongue (two at the base and one at the tip) and one at the inside tip of each mandible; the tongue spurs were white and prominent. This five-spot pattern is usual among young of Western Palearctic larks<sup>2</sup>, but the markings on this Raso Lark were longer, thinner and less distinct than those in other young larks when recently hatched. It is unknown whether the markings are rounder, darker, and more closely resemble those of other young larks when the birds are recently hatched, but this seems possible.

## Tending of the young

Again, *BWP*<sup>2</sup> offers no information on the role of the sexes in this respect. I was first attracted to the young bird described above by an adult male Raso Lark. As I approached a vegetated area, the male appeared a few metres away from me and ran backwards and forwards in an agitated manner with an erect crest. As I watched, a female and three young fluttered out of the vegetation c1 m from an obviously recently occupied nest. Both adults fed the young on unidentified items including, on one occasion, a long-winged insect. Among the various lark species breeding in the Western Palearctic, feeding and tending of the young is typically undertaken by both sexes, where known. Raso Lark appears to behave similarly.


## Predation

As stated previously, four nests contained fragments of unhatched eggshells. Adult Raso Larks, in common with other larks, would almost certainly remove hatched eggshells from their nests. In October, a pair of Brown-necked Raven *Corvus ruficollis*, a potential predator, was showing considerable interest in the vegetated areas.

## Conclusions

This paper provides new information on the breeding biology of the little-studied Raso Lark. Some aspects, such as role of the sexes in nest-building, incubation and tending of the young, require longer term study.

## Acknowledgements

Thanks are due to Dr Colin Harrison, who made valuable comments on an earlier draft of this paper, and Roy Vickery, Curator of Flowering Plants at the Natural History Museum in London, for identifying the plant species most associated with Raso Lark nests. 

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